

## **REMARKS**

### **Formal Matters**

Claims 1-10 and 26-29 are pending.

Claims 1-3, 5, 7-10, 13 and 16-20 were examined and rejected.

Claims 1-4 and 13-20 are amended and claims 26-29 are new. The claims have been amended for clarity and claim 16 has been amended to become independent. Support for the amendments and the new claims may be found in the specification and claims as originally filed, for example at page 23, lines 8-10, page 8, lines 28-29, page 21, page 18, line 25. No new matter is added. Support for a "multilayered" structure may be found on page 8, lines 28-29 and page 18, line 25. Claims 18, 19 and 20 are amended to include subject matter of claims from which they were dependent.

Claims 21-25 are cancelled without prejudice to renewal.

Applicants respectfully request reconsideration of the application in view of the remarks made herein.

### **Information disclosure statement**

Applicants respectfully request that the Examiner initial and return the PTO/SB/08A form submitted with the Information Disclosure Statement filed herewith, thereby indicating that the reference cited therein has been reviewed and made of record.

Since the cited reference has been previously supplied to the Office, no copy of the reference is submitted herewith.

### **Specification**

The Office notes that the declaration is deficient because page 2 of the declaration is missing.

Attached hereto is a substitute declaration, meeting the requirements of 37 C.F.R. § 1.63. The Applicants request that this declaration be placed in the file.

### **Rejection of claims under 35 U.S.C. § 112, second paragraph**

Claims 1-3, 5, 7-10, 13 and 16-20 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

The Office asserts that the term “template” in claim 1 renders the claim indefinite.

Without wishing to acquiesce to the correctness of this rejection, the term “template” has been deleted from the claim and, as such, this rejection is now moot.

The Office asserts that the term “substantially identical” in claim 1 renders the claim indefinite.

Without wishing to acquiesce to the correctness of this rejection, the term “substantially identical” has been deleted from the claim and, as such, this rejection is now moot.

The Office asserts that the term “the deposited layers” in claim 1 renders the claim indefinite because there is insufficient antecedent support for such a term.

Without wishing to acquiesce to the correctness of this rejection, element a) of claim 1 has been amended to recite “a multi-layered structure”, and element b) of claim 1 has been amended to refer to “said multi-layered structure”. The Applicants respectfully submit that “said multi-layered structure” finds antecedent support in the claim, and, accordingly, this rejection may be withdrawn.

The Office asserts that the term “the substrate” in claims 2 and 3 renders the claims indefinite because there is insufficient antecedent support for such a term.

Without wishing to acquiesce to the correctness of this rejection, claim 2 has been amended to recite “a substrate”. Since the term “the substrate” in claim 3 finds antecedent support in claim 2, this rejection may be withdrawn.

The Office asserts that the term “the one or more layers in the stack”, the stacked layers” and “the deposited layers” in claims 3 and 17 renders the claims indefinite because there is insufficient antecedent support for such terms.

Without wishing to acquiesce to the correctness of this rejection, claims 3 and 17 have been amended to remove these terms and, accordingly, this rejection may be withdrawn.

The Office asserts that the term “the microbar encoders” in claim 3 renders the

claims indefinite because there is insufficient antecedent support for such a term.

Without wishing to acquiesce to the correctness of this rejection, claim 3 has been amended to recite “the plurality of microbar encoders”. Since a plurality of microbar encoders are recited in claim 1, this term finds full antecedent support in claim 1, and, accordingly, this rejection may be withdrawn.

The Office asserts that the term “the probe molecule” and “the target molecule” in claims 8 and 9 render the claims indefinite because there is insufficient antecedent support for such terms.

The Applicants note that the phrase “a probe molecule” is found in the preamble of claim 1, and, accordingly, there is full antecedent support for the phrase “the probe molecule” in claim 8.

Further, the Applicants submit that the phrase “a target molecule” is found in claim 8, and, accordingly, there is full antecedent support for the phrase “the target molecule” in claim 9. As mentioned in the preceding paragraph, support for “said probe molecule” in claim 9 is found in claim 1, via claim 8.

The Applicants respectfully request withdrawal of this rejection.

#### **Rejection of claims under 35 U.S.C. § 102**

Claims 1-3, 5, 7-10, 13, 16 and 18-20 are rejected under 35 U.S.C. § 102(a) as being anticipated by Natan (WO01/025002). The Applicants respectfully traverse this rejection.

The Applicants respectfully submit that Natan solely teaches methods in which freestanding microbars (termed “nanobars” in Natan’s disclosure) are build from the bottom up, as opposed to methods in which a multi-layered substrate is divided to form microbars, as required by instant claims. While Natan may state that microbars can be prepared “without a template” or that “nanobar codes that are not produced by some form of deposition or growth with a template...”, Natan does not suggest how this can be done.

Accordingly, the Applicants respectfully submit that Natan fails to teach element b) of claim 1, i.e., dividing a multi-layered structure into the plurality of microbar encoders. This element is simply not taught by Natan’s disclosure.

The Office has pointed towards paragraphs 2 and 4 of page 4 of Natan in order to support its argument that Natan teaches dividing a multi-layer structure to produce

microbar encoders having the same signal. However, in these paragraphs, Natan references a plurality of microbars, but states that the particles “*are differentiable*”. Since Natan’s plurality of microbars are differentiable, i.e., different, they cannot have the same signal, as argued by the Office. Natan’s plurality of microbars are made using a completely different method to that claimed because they are built from the bottom up.

Finally, and with respect to photolithographic methods in particular, the Office argues that Natan discloses photolithographic methods for dividing a multilayered structure on lines 17-19 of page 16, line 20 of page 27 and line 12 of page 37. However page lines 17-19 of 16 discuss how photolithographic methods can be employed in building nanobars from the bottom up (i.e., in depositing microbar segments), line 20 of page 27 discusses using photolithographic techniques to control *pore size* of nanorods, and line 12 of page 37 describes photolithographic methods for chemically attaching oligonucleotides to a nanobar. None of these sections describe a photolithographic method for dividing a multilayered substrate into microbars.

In view of the foregoing discussion, the Applicants respectfully request submit that this rejection has been adequately addressed. Withdrawal of this rejection is respectfully requested.

Claims 1-3, 5, 7-10, 13, 16-20 are rejected under 35 U.S.C. § 102(a) as being anticipated by Ravkin (WO00/63419). The Applicants respectfully traverse this rejection.

Applicants firstly wish to point out that claims 16 and 26-29 are directed to methods in which multi-layered substrates are divided non-mechanically. Examples of non-mechanically dividing, as described in the paragraph starting on line 31 of page 22, include photolithography, ion milling, and laser ablation, whereas mechanical methods include dicing and punching. New claims 27-29 are directed to dividing methods involving photolithography, ion milling and laser ablation, respectively, and claim 16 recites dividing methods that require the use of photolithography.

Ravkin’s disclosure is directed towards producing a library of carriers (i.e., microbars) in which each of the carriers in the library has a *different* code. There is no suggestion in Ravkin’s disclosure that a plurality of microbars having the *same* code can be made from a single multi-layered structure using *any* means. At best, Ravkin teaches mechanically cutting a *single* microbar from a multi-layered structure (as shown in Fig. 3), however, as discussed above, this microbar is used to make a library of microbars

having *different* codes. In fact, Ravkin fails to recognize the value of first producing a multi-layered structure, and then dividing a multi-layered substrate to produce a *plurality* of microbar encoders having a characteristic detectable signal, as required by the instant claims.

The sections of Ravkin's disclosure that are pointed towards by the Office to argue that Ravkin teaches making a plurality of the same microbar encoder by dividing a multi-layer structure (i.e., claim 9, lines 15-23 of page 5, paragraph 2 of page 6, paragraph 2 of page 8, lines 17-18 of page 8 and paragraph 2 of page 17), actually relate to using a plurality of *different* microbar encoders (e.g., see element (a) of claim 9: "placing into each of a plurality of reaction vessels, carriers having a selected *one of a plurality of detectable code combinations...*"). Accordingly, the Applicants respectfully submit that these sections do not support producing a plurality of microbar encoders having the *same* code.

Further, and with particular reference to claim 16 and new claims 26-29, the Applicants respectfully submit that Ravkin fails to disclose any non-mechanical means for making microbars from a multi-layered structure.

The sections to which the Office points in support of Ravkin teaching photolithography methods do not actually teach methods of photolithographically dividing a multi-layered structure to provide a plurality of microbars. The paragraph bridging pages 14 and 15, in fact, teaches a method in which a *single* layer of polysilicon film (204) is partially etched to form recessed areas, and the recessed areas are filled with a identification film with particular optical properties. This method involves neither a multi-layer structure containing layers of transducing materials, or dividing such a multi-layer structure, i.e., separating a multi-layer structure into portions, as required by the instant claims. The last two paragraphs of page 27 merely state that photographically imprinted films (not subject microbar encoders) may be made by photolithographic methods, and repeat that photolithographic methods may be used to produce an optical pattern, as discussed in the paragraph bridging pages 14 and 15. There is absolutely no discussion of non-mechanical methods for dividing a multi-layered structure to provide a plurality of microbars in Ravkin. Ravkin simply fails to see the advantages of such a method.

Accordingly, even if the Office could somehow construe Ravkin as teaching mechanically *cutting* a plurality of microbar encoders from a multi-layered structure,

Ravkin still does not preclude the patentability of claims 16 and 26-29, which recite non-mechanical methods.

In view of the foregoing, withdrawal of this rejection is respectfully requested.

**CONCLUSION**

The Applicants respectfully submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone Timothy Joyce at 650 485 4310. The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 which may be required by this paper, or to credit any overpayment, to Deposit Account No. 50-1078.

Respectfully submitted,

Date: 6.18.04

By: 

Bret E. Field  
Registration No. 37,620

Date: 6/18/04

By: 

James S. Keddie, Ph.D.  
Registration No. 48,920